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## 5. History Grading

**Program Name:** History.java

**Input File:** history.dat

On a history exam students have to arrange events in chronological order. Students who order all the events correctly receive full credit. However, how do we give partial credit to students who get a few of the events out of order? Here is one scheme for partial ordering that you are asked to implement.

You will award 1 point for each event in the longest (not necessarily contiguous) sequence of events that are in the correct order relative to each other. For example, if four events are correctly ordered 1 2 3 4 then the order 1 3 2 4 will receive a score of 3 (since the event sequences 1 2 4 and 1 3 4 are both in the correct order relative to each other). The order 4 3 2 1 will receive a score 1 (you are being generous).

### Input

The first line will have two integers  $m$  and  $n$  separated by one or more spaces. The first integer  $m$  is the number of questions that you will have to grade, where  $2 \leq m \leq 20$ . The second integer  $n$  is the number of chronological events to order. After the first line, there will be  $m$  lines of input. Each line will have  $n$  integers in the range  $1 \leq n \leq ; ; ;$ . On a given line of input no integer will be repeated. Each integer will be separated from other integers by one or more spaces. The correct order is the monotonically increasing sequence of the  $n$  integers.

### Output

There will be  $m$  lines of output. Each line will have the score for that question.

### Sample Input

```
5 5
1 2 3 4 5
5 4 3 2 1
33 29 47 52 19
403 256 38 575 14
3002 108 4267 5422 8543
```

### Sample Output

```
5
1
3
2
4
```